MANUAL & AUTOMATED STEP TRANSFORMER INA 6501/6502

USER MANUAL

601-262B

TESEQ

Advanced Test Solutions for EMC

MANUAL & AUTOMATED STEP TRANSFORMER INA 6501/INA 6502

USER MANUAL

CONTENTS

1	**Manual step transformer INA 6501**	**5**
1.1	Circuit diagram INA 6501	6
1.2	Technical specifications INA 6501	6
1.2.1	Parts description	7
1.3	Installation - connection to NSG	7
2	**Automated step transformer INA 6502**	**9**
2.1	Circuit diagram INA 6502	10
2.2	Technical specifications INA 6502	10
2.2.1	Parts description	11
2.3	Installation - connection NSG of CDN	12
3	**Addresses**	**14**

1 MANUAL STEP TRANSFORMER INA 6501

The manual step transformer type INA 6501 is a standard accessory for the Teseq NSG 3000 instrumentation series. It provides a convenient means for reducing the incoming supply voltage by pre-set amounts. It is required for power quality testing (PQT) and is fully compliant with the latest revisions of IEC 61000-4-11:2004.

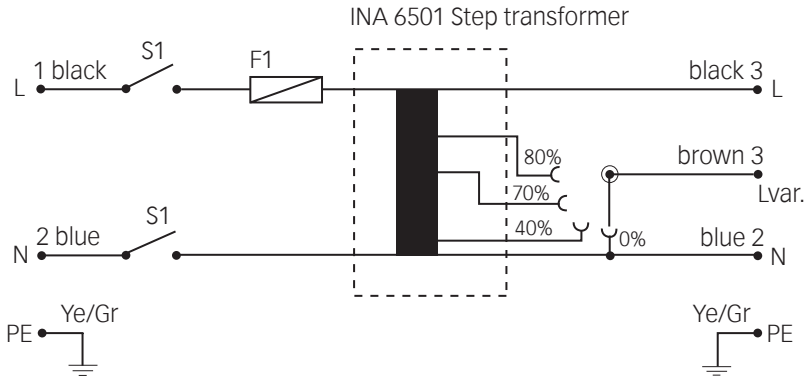
It is fitted with carrying handles as part of its overall good ergonomic design, which makes for ease of handling. Further, the unit may be used in any of three operating positions; laying or standing on a work bench, or for more permanent applications, it can be wall-mounted.

Care has to be taken in case of use in standing position, as the stability is limited. The cabling connecting INA 6501 to mains and NSG presents a risk of being unvoluntarily caught by the users which could cause the INA 6501 to fall down.

The few control elements are readily accessible on the front panel. An EUT power on/off switch with a power on indicator and a well-proportioned rotary switch to select the required voltage ensure easy and intuitive operation. The unit has been designed for use in rugged industrial environments. Professional quality connectors ensure user safety, additional system protection is provided by a 16 A fuse located in the front panel.

Thanks to the provision of an 80% voltage position and to the large overcurrent capabilities the step transformer is fully compliant with the latest requirements called for in IEC 61000-4-11: 2004 standard.

1.1 Circuit diagram INA 6501



1.2 Technical specifications INA 6501

Input voltage	0 to 250 VAC (not suited for DC voltages)
Output voltage	4 steps: 0 - 40% - 70 - 80%
Accuracy	± 5%
Voltage change with load:	
100% output; 0 to 16 A	less than 5%
80% output; 0 to 20 A	less than 5%
70% output; 0 to 23 A	less than 5%
40% output; 0 to 40 A	less than 5%
Output current capability at 230 V input voltage	16 Arms at 100% output 20 Arms at 80% output 23 Arms at 70% output 40 Arms at 40% output
Voltage selection	Front panel rotary switch
EUT power on/off function	Front panel switch with on indicator
Fuse	16 A, slow blow
Connectors	Harting type HAN3A, compatible with NSG safe linking concept

Size	150 x 180 x 360 mm
Weight	12 kg approx.
Cable length to NSG	2 m
Input cable	NSG standard cable to be used

1.2.1 Parts description

Part designation	Function
EUT power in switch	Switches on/off the EUT power supply
16 AT fuse	Protects the EUT power supply line
EUT power in plug	This is where the EUT power needs to be applied – use NSG supplied cable and conect it to power source (mains)
EUT power out cable	Connect this cable to the EUT supply input port of NSG
Red selector	To switch variable voltage to 0 or 40% or 70 or 80% of Uin

1.3 Installation - connection to NSG

The equipment should be switched off during installation and interconnection.

- Connect INA 6501 - EUT power out to NSG - EUT power input
- Connect INA 6501 - EUT power in to mains using EUT power in cable (delivered with NSG)

Because of the capacitors in the internal coupler of CDN, earth leakage currents of up to 4 A can occur in the EUT power supply network. The test system must therefore be correctly earthed and be powered from a supply that is not protected by a residual current detector (RCD).

- Switch on EUT power on INA 6501 (red switch) when power for the EUT is required
- Switch on the NSG generator
- Select the required variable voltage using rotary switch on the INA 6501

2 AUTOMATED STEP TRANSFORMER INA 6502

The automated step transformer type INA 6502 is a standard accessory for the Teseq NSG 3000 instrumentation series. It provides a convenient means of reducing the incoming supply voltage by pre-set amounts. It is required for power quality testing (PQT) and is fully compliant with the latest revision of IEC 61000-4-11 (2004).

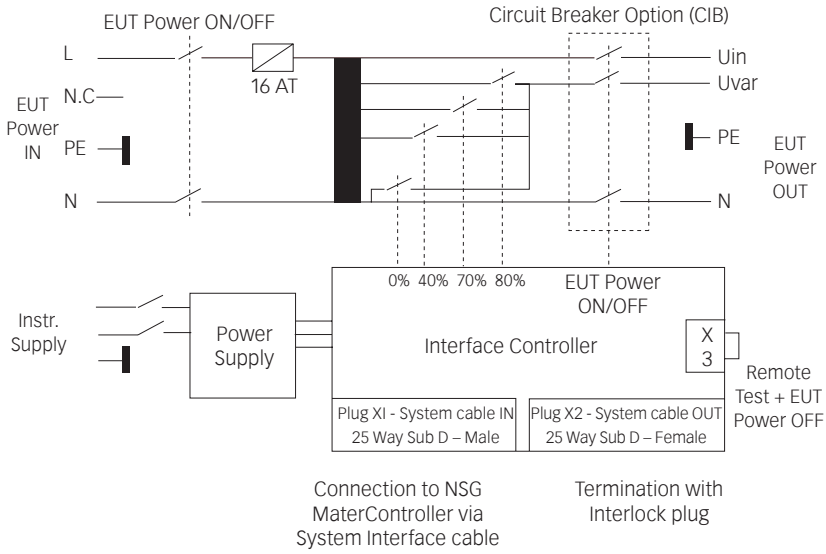
Its control is fully automatic, driven from NSG master controller, using the interface or WIN 3000 software. Once detected the functions offered by INA 6502 are available in the interface or software. So the settings 0 - 40% - 70 - 80% will appear, as well as the possibility to switch EUT power on/off.

INA 6502 comes fitted with carrying handles as part of it's overall good ergonomic design, which makes for ease of handling. Further, the unit may be used in any of two operating positions; laying on a work bench, or for more permanent applications, it can be wall-mounted.

The unit has been designed for use in rugged industrial environments. Professional quality connectors ensure user safety, additional system protection is provided by a 16 A fuse located in the top panel.
Thanks to the provision of an 80% voltage position and to the large over current capabilities the step transformer is fully compliant with the latest requirements called for in IEC 61000-4-11:2004 standard.

For proper operation of the plug and play detection mechanisms it is strongly recommended to power on first the INA 6502 accessory and then the NSG main frame.

2.1 Circuit diagram INA 6502



2.2 Technical specifications INA 6502

Input voltage	0 to 250 VAC (not suited for DC voltages)
Output voltage	4 steps: 0 - 40% - 70 - 80%
Accuracy	± 5%
Voltage change with load:	
100% output; 0 to 16 A	less than 5%
80% output; 0 to 20 A	less than 5%
70% output; 0 to 23 A	less than 5%
40% output; 0 to 40 A	less than 5%
Output current capability at 230 V input voltage:	16 Arms at 100% output 20 Arms at 80% output 23 Arms at 70% output 40 Arms at 40% output
Voltage selection	User interface or WIN 3000 software

EUT power on/off function	■ Front panel switch with on indicator
Fuse	16 A, slow blow
Connectors	Harting type HAN3A compatible with NSG safe linking concept
Possible extensions	■ Connection to remote EUT power on/off switch (INA 6581) ■ Interlock connection to door switch
Own supply	Selectable 100-110 V; 220-240 V 15 VA
Size	460 x 200 x 160 mm
Weight	15 kg approx.
Cable length to Modula	2 m
Input cable	NSG standard cable to be used
Control cable (included in delivery)	2 m - 25 way sub D – twisted pair - shielded

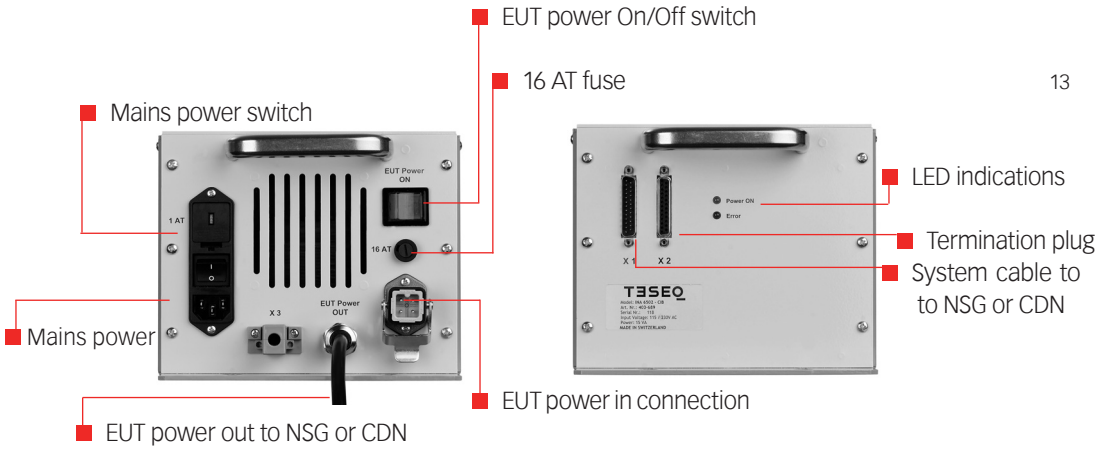
2.2.1 Parts description

Part designation	**Function**
Mains supply in socket	For instrument supply, includes plug, voltage selector (110 V – 230 VAC), on/off switch and fuse
EUT power in switch	Switches the EUT power supply on/off
16 AT fuse	Protects the EUT power supply line
EUT power in plug	For feeding of the EUT power – use NSG supplied cable and connect it to power source (mains)
EUT power out cable	Connect this cable to the EUT supply input port of the NSG

Part designation	Function
Plug X3	Remote TEST and EUT power off: with shorting plug. Allows to conect external door switch or equivalent (e.g. INA 6581) Interrupts the 24 V supply of the circuit breaker contactor which switches EUT supply on/off The information will be transmitted to NSG master controller which will stop the test
Plug X2	NSG system interface out – to be termi nated by interlock plug or linked to another accessory, to X1 plug
Plug X1	NSG system interface in – to be con-nected to master controller or to another accessory, to X2 plug
Power LED (green)	Shows if instrument is powered up
Error LED off	No problem - acessory is ready to run
ERROR LED blinking	Problem which may be solved by user intervention. Expl: Interlock is activated – emergency button is pressed –
ERROR LED on	Problem which needs module repair please ntact your nearest Teseq customer support center or sales reprsentative

2.3 Installation - connection to NSG or CDN

The equipment should be switched off during installation and interconnection.



- Verify the setting of input voltage selector and adjust it to the right mains voltage value if required
- Connect instrument power from the mains
- Remove 25 way Sub D plug at rear of NSG or CDN
- Connect this connector to X2 of INA 6502
- Connect master controller 25 way output to INA 6502 X1 plug, using system interface cable delivered with INA 6502
- Connect INA 6502 - EUT power out to EUT power input
- Connect INA 6502 - EUT power in to mains using EUT power in cable delivered with NSG or CDN

Because of the capacitors in the internal coupler of CDN, earth leakage currents of up to 4 A can occur in the EUT power supply network. The test system must therefore be correctly earthed and be powered from a supply that is not protected by a residual current detector (RCD).w

- Switch on INA 6502 first
- Switch on NSG/CDN mainframe
- Switch on EUT power (red switch) when power for the EUT is required

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